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09/835,040	04/13/2001	Jerry B. Roberts	M0000-1001	5093

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EXAMINER

NGUYEN, KIMNHUNG T

ART UNIT	PAPER NUMBER
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2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/835,040	Applicant(s) ROBERTS, JERRY B.	
	Examiner Kimnhung Nguyen	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 111-164 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 111-164 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Application has been examined. The claims 111-164 are pending. Claims 1-110 are canceled. The examination results are as following.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 111-164 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frisch et al. (US 5,854,625) in view of Figie et al. (US 5,872,561).

Regarding claims 111,140, Frisch et al. discloses in figure 2A-3B, a force sensor for sensing a touch force applied to touch surface (18), the force sensor comprising: a first element including a first capacitor plate (see touch surface 18 comprising a first capacitor 24a) having first capacitive surface; and second element including a second capacitor plate (24b) opposed to the first capacitor plate; wherein transmission of at least part of the touch force through the elastic element contributes to a change capacitance between the first capacitor plate and the second capacitor plate (see column 5, lines 62-67).

However, Frisch et al. does not disclose the first element (including capacitor 24a) has at least a portion is an elastic element.

Figie et al. discloses in fig 1, a switch matrix (10) having a first element is an elastic member (see membrane 12, constructed of a flexible, see col. 3, lines 66-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the using of membrane constructed of flexible as taught by Figie et al. into the system of Frisch et al. for producing the claimed invention because this would provide a finger or stylus presses down upon forward membrane, it deforms that membrane to cause contact (14) to touch corresponding contact (18) to allow a current flow therebetween (see col. 3, lines 62-67).

Regarding claims 112, 141, Frisch et al. discloses further the first element (2) is substantially planar (see figure 2A).

Regarding claim 113, Frisch et al. does not disclose the first capacitor plate and the elastic element are integral. Figie et al. discloses in fig 1, a switch matrix (10) having a first element capacitor (12) also is an elastic member and thus the first capacitor plate and the elastic element are integral (see membrane 12, constructed of a flexible, see col. 3, lines 66-68) and discussed above.

Regarding claims 114-119, 142, Frisch et al. discloses the first capacitor plate and the elastic element are composed have the same substrate (see figure 2A), and the force sensor, further comprising force-receiving means (regions 32) for receiving at least part of the touch force into the first element (see column 6, lines 65-67). However, Frisch et al. does not disclose the elastic element comprises an elevated feature of the first capacitor plate, and located at the elastic center of the first element. Figie discloses the elastic element comprises an elevated feature of the first capacitor plate, and located at the elastic center of the first element as discussed).

Regarding claims 120-121, 145-146, Frisch et al. discloses the force sensor further, the touch surface (18) is in communication with a region surface of the force-receiving means (32), and wherein the touch surface tends to remain in contact with the region the surface of the force-receiving means when the position of the touch surface changes with respect the force-receiving means (see col.6, lines 65-67), further comprising force transmission means (32) for transmitting at least part of the touch force to at least one structure other than the first element.

Regarding claims 122-125, 158, Frisch et al. discloses further the force sensor, wherein the second element (14) comprises planar support surface that includes a plurality electrically conductive mechanical bearing contacts (see col. 5, lines 62-64); and wherein at least portions of the first capacitor plate are in contact with the plurality of mechanical bearing contacts to transmit force thereto (see col. 5, lines 62-67), wherein the second capacitor plate (24b) includes a second capacitive surface that is coplanar with the plurality of mechanical bearing contacts and are composed of the same substrate (see col.6, lines 36-38). The force sensor of claim wherein the planar support surface is part of an interconnect system to transmit a signal developed response to the change capacitance between the first capacitor plate and the second capacitor plate (see col. 5, lines 39-46), and wherein the second capacitive surface and the at least one support surface are integral (see figure 2A).

Regarding claims 127-129, 152-154, Frisch et al. discloses that the force sensor, further comprising force signal development means for developing a signal in response to the change in capacitance between the first capacitor plate and the second capacitor plate, and wherein the force sensor includes an inherent axis of sensitivity that passes through the elastic, and wherein the touch surface is a touch surface of a handheld device (see column 3, lines 33-37).

Regarding claims 126, 130-139, 151, 155-157 and 159-164 Frisch et al. and Figie et al. disclose every feature of the claimed invention as discussed above, excluding wherein the first and second capacitor plates are separated by a volume, and wherein the ratio of the height of the volume to the volume's greatest breadth is less than .05; or the length of the mechanical path defining the capacitive gap being no greater than one-fifth of the maximum distance between any two force sensors that are used in the touch location device, or wherein the first capacitive surface, the elastic element and, and the second capacitor plate has a greatest dimension that is at least five times its least dimension; or the length of the mechanical path defining the capacitive gap being no greater than four times the maximum dimension of the volume of the capacitor gap; or the unloaded state of the force sensor not more than 10 mils, or the unloaded state of the force sensor is not less than thirty times the average height of the capacitive gap in the unloaded state of the force sensor; or the wherein the force sensor has a normal stiffness not less than 0.5 pounds per mil.

It would have been obvious for Frisch et al. and Figie et al.'s system to have wherein the first and second capacitor plates are separated by a volume, and wherein the ratio of the height of the volume to the volume's greatest breadth is less than .05; or the length of the mechanical path defining the capacitive gap being no greater than one-fifth of the maximum distance between any two force sensors that are used in the touch location device, or wherein the first capacitive surface, the elastic element and, and the second capacitor plate has a greatest dimension that is at least five times its least dimension; or the length of the mechanical path defining the capacitive gap being no greater than four times the maximum dimension of the volume of the capacitor gap;

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or the unloaded state of the force sensor not more than 10 mils, or the unloaded state of the force sensor is not less than thirty times the average height of the capacitive gap in the unloaded state of the force sensor; or the wherein the force sensor has a normal stiffness not less than 0.5 pounds per mil as claimed since such a modification would have involved a mere change in size/range of the system. A change in size/range is generally recognized as being within the level of ordinary skill in the art.

See In Rose, 105 USPQ 237 (CCPA 1995) and

See In re Reven, 156 USPQ 679 (CCPA 1968).

Response To Arguments

4. Applicant's arguments, filed on 4/19/07, with respect to 111-164 have been fully considered but they are not persuasive.

Applicant states that "Frisch discloses a touch surface 18 and a sensor type device (capacitor 24) that senses a touch force applied to the touch surface 18. However, Frisch fails to disclose or suggest "a first capacitor plate at least a portion of which is an elastic element that allows the first capacitor plate to move" (claim 111) or "a first capacitor plate having an elastic element portion" (claim 140). The capacitive plates 24a, 24b disclosed by Frisch do not include an elastic element. The spring members 20 disclosed by Frisch are separate and distinct from the capacitive plates 24a, 24b. Therefore, Frisch fails to disclose or suggest every limitation of at least claims 111 and 164".

"Figie fails to remedy the deficiencies of Frisch as it relates to claims 111 and 140. Figie discloses a switch matrix 10 that includes an outer membrane 12 and a rearward membrane 16.

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Each membrane is constructed of a flexible, electrically insulating, transparent material. The insulating properties prohibit the membranes 12, 16 from functioning as a capacitive member. A plurality of contacts 14 are positioned on a rear surface of the membrane 12, and a plurality of contacts 18 are positioned on a front surface of the membrane 16 directly across from individual contacts 14. The membranes 12, 16 are arranged such that when a finger or stylus presses down upon the membrane 12, the membrane 12 is deformed to cause contact 14 to touch corresponding contact 18. When the contacts 14, 18 engage, a current flows therebetween to provide a switch function. The membranes 12, 16 remain separated by insulating spacers until the membrane 12 is engaged by a stylus/finger. The contacts 14, 18 do not function as a capacitive structure, wherein a change in capacitance of the capacitive structure is monitored as part of a sensor device. The contacts 14, 18 are components of a switch element 26 that operates only upon engagement of the contacts 14, 18 to generate current flow”.

“The membrane 12 disclosed by Figie is not an elastic element portion of a capacitor plate as the rejection contends. The membrane 12 is a flexible, insulating substrate that supports an electrical contact 14 of a switch element 26. An insulating material is not capacitive.

Examiner respectfully disagrees because Frisch et al. discloses in figure 2A-3B, a force sensor for sensing a touch force applied to touch surface (18), the force sensor comprising: a first element including a first capacitor plate (see touch surface 18 comprising a first capacitor 24a) having first capacitive surface; and second element (including a second capacitor plate (24b) opposed to the first capacitor plate; wherein transmission of at least part of the touch force through the elastic element contributes to a change capacitance between the first capacitor plate and the second capacitor plate (see column 5, lines 62-67). But, Frisch et al. does not disclose the

first element has at least a portion is an elastic element. Figie discloses in fig. 1, a display system (switch matrix (10) an display 20) having a first element (12) is an elastic member (see membrane 12, constructed of a flexible, see col. 3, lines 66-68) and a second element (16). The membrane 12 is an elastic element portion of a capacitor plate because it is a flexible and supports an electric contact 14. Therefore, the combination of Frisch et al. and Figie are satisfied for its intended purpose. For these reasons, the rejections are maintained.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimnhung Nguyen whose telephone number is (571) 272-7698. The examiner can normally be reached on MON-FRI, FROM 8:30 AM-5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimnhung Nguyen

Patent Examiner

July 9, 2007



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